中 国 船 级 社



CHINA CLASSIFICATION SOCIETY

**ENHANCED SURVEY PROGRAMME**

**FOR BULK CARRIERS**

**Basic information and particulars**

|  |  |
| --- | --- |
| Ship’s name: |  |
| Kind of Survey: | [ ]  No. Special Survey  |
| [ ]  Intermediate Survey in scope of No. Special Survey  |
| IMO number: |  |
| Flag State: |  |
| Port of registry: |  |
| Gross tonnage: |  |
| Deadweight (metric tonnes): |  |
| Length between perpendiculars(m): |  |
| Shipbuilder: |  |
| Hull No.: |  |
| Recognized organization (RO): | China Classification Society |
| Class No.: |  |
| Class Character and Notations of Hull: |  |
| Date of build of the ship: |  |
| Owner: |  |
| Thickness measurement firm: |  |

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**1. Preamble**

**1.1 Scope**

1.1.1 The present survey programme covers the minimum extent of overall surveys, close-up surveys, thickness measurements and pressure testing within the cargo length area, cargo holds, ballast tanks including fore and aft peak tanks, required by CCS Rules and 2011 ESP Code.

1.1.2 The arrangements and safety aspects of the survey shall be acceptable to the attending surveyor(s).

**1.2 Documentation**

All documents used in the development of the survey programme shall be available onboard during the survey as required by 5.1.6.5(2)①, Section 1, Chapter 5, PART ONE of CCS Rules.

**2. Arrangement of cargo holds, tanks and spaces**

This section of the survey programme shall provide information (either in the form of plans or text) on the arrangement of cargo holds, tanks and spaces that fall within the scope of the survey.

**3. List of cargo holds, tanks and spaces with information on their use, extent of coatings and corrosion prevention system**

This section of the survey programme should indicate any changes relating to (and should update) the information on the use of the cargo holds and ballast tanks of the ship, the extent of coatings and the corrosion prevention system provided in the Survey Planning Questionnaire.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tank/ Hold No.** | **Corrosion Protection****①** | **Coating Extent****②** | **Coating Condition****③** |
| **HC** | **SH** | **SC** | **A** | **NP** | **U** | **M** | **L** | **C** | **G** | **F** | **P** | **RC** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Abbreviation:

① HC-N: Hard coating not subject to PSPC and PSPC (Void Space)

HC-B: Hard coating applied in dedicated seawater ballast tanks (PSPC)

SH = Semi Hard Coating SC = Soft coating A = Anodes NP = No protection

② U=Upper part M=Middle part L=Lower part C=Complete

③ G=Good F=Fair P=Poor RC=Recoated (during the last 3 years)

Notes:

(1) For sub-column marked with “HC”, type of hard coating is to be filled in, if applicable;

(2) For all columns except the sub-column mark with “HC”, “X” is to be filled in as applicable;

(3) For the definition of the coating condition, refer to CCS Rule.

**4. Conditions for survey**

4.1 The owner shall provide the necessary facilities for a safe execution of the survey.

4.1.1 In order to enable the attending surveyors to carry out the survey, provisions for proper and safe access shall be agreed between the owner and China Classification Society, based on IMO Resolution A.1050(27) -- Revised recommendations for entering enclosed spaces aboard ships.

4.1.2 In cases where the provisions of safety and required access are judged by the attending surveyor(s) not to be adequate, the survey of the spaces involved shall not proceed.

4.2 Cargo holds, tanks and spaces shall be safe for access. Cargo holds, tanks and spaces shall be gas free and properly ventilated. Prior to entering a tank, void or enclosed space, it shall be verified that the atmosphere in that space is free from hazardous gas and contains sufficient oxygen.

4.3 In preparation for survey and thickness measurements and to allow for a thorough examination, all spaces shall be cleaned including removal from surfaces of all loose accumulated corrosion scale. Spaces shall be sufficiently clean and free from water, scale, dirt, oil residues etc. to reveal corrosion, deformation, fractures, damages, or other structural deterioration as well as the condition of the coating. However, those areas of structure whose renewal has already been decided by the owner need only be cleaned and descaled to the extent necessary to determine the limits of the areas to be renewed.

4.4 Sufficient illumination shall be provided to reveal corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating.

4.5 Where soft or semi-hard coatings have been applied, safe access shall be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft or semi-hard coating shall be removed.

4.6 The surveyor(s) shall always be accompanied by at least one responsible person, assigned by the owner, experienced in tank and enclosed space inspection.

**5. Provisions and method of access to structures**

This section of the survey programme shall indicate any changes relating to (and update) the information on the provisions and methods of access to structures provided in the survey planning questionnaire.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Hold/Tank****No.** | **Structure** | **Permanent Means of Access** | **Temporary staging** | **Hydraulic arm vehicles** | **Rafts** | **Ladders** | **Direct Access** | **Other means****(please specify)** |
| **F.P.** | Fore Peak |  |  |  |  |  |  |  |
| **A.P.** | Aft Peak |  |  |  |  |  |  |  |
| **Cargo Holds** | Hatch side coamings |  |  |  |  |  |  |  |
| Topside sloping plate |  |  |  |  |  |  |  |
| Upper stool plating |  |  |  |  |  |  |  |
| Cross deck |  |  |  |  |  |  |  |
| Side shell, frames and brackets |  |  |  |  |  |  |  |
| Transverse bulkhead |  |  |  |  |  |  |  |
| Hopper tank plating |  |  |  |  |  |  |  |
| Lower stool |  |  |  |  |  |  |  |
| Tank top |  |  |  |  |  |  |  |
| **Topside Tanks** | Underdeck structure |  |  |  |  |  |  |  |
| Side shell and structure |  |  |  |  |  |  |  |
| Sloping plate and structure |  |  |  |  |  |  |  |
| Webs and bulkheads |  |  |  |  |  |  |  |
| **Hopper Tanks** | Hopper sloping plate and structure |  |  |  |  |  |  |  |
| Side shell and structure |  |  |  |  |  |  |  |
| Bottom structure |  |  |  |  |  |  |  |
| Webs and bulkheads |  |  |  |  |  |  |  |
| **Double side****tanks** | Side shell and structure |  |  |  |  |  |  |  |
| Inner skin and structure |  |  |  |  |  |  |  |
| Webs and bulkheads |  |  |  |  |  |  |  |
|  | Double bottom structure |  |  |  |  |  |  |  |
|  | Upper stool internal structure |  |  |  |  |  |  |  |
|  | Lower stool internal structure |  |  |  |  |  |  |  |
| **Wing tanks of ore carriers** | Underdeck and structure |  |  |  |  |  |  |  |
| Side shell and structure |  |  |  |  |  |  |  |
| Side shell vertical web and structure |  |  |  |  |  |  |  |
| Longitudinal bulkhead and structure |  |  |  |  |  |  |  |
| Longitudinal bulkhead web and structure |  |  |  |  |  |  |  |
| Bottom plating and structure |  |  |  |  |  |  |  |
| Cross ties/stringers |  |  |  |  |  |  |  |

Note: For all columns except the column mark with “Other means (please specify)”, “X” is to be filled in as applicable.

5.1 For overall surveys, means shall be provided to enable the surveyor to examine the hull structure in a safe and practical way.

5.2 For close-up surveys, one or more of the following means for access, acceptable to the Surveyor, shall be provided:

5.2.1 For close-up surveys of the hull structure, other than cargo hold shell frames, one or more of the following means for access, acceptable to the surveyor, shall be provided:

(a) Permanent staging and passages through structures;

(b) Temporary staging and passages through structures;

(c) Hydraulic arm vehicles such as conventional cherry pickers, lifts and moveable platforms;

(d) Portable ladders;

(e) Boats or rafts; and/or

(f) Other equivalent means.

5.2.2 For close-up surveys of the cargo hold shell frames of single-side skin bulk carriers less than 100,000 dwt, one or more of the following means for access, acceptable to the surveyor, shall be provided:

(a) Permanent staging and passages through structures;

(b) Temporary staging and passages through structures;

(c) Portable ladder restricted to not more than 5m in length may be accepted for surveys of lower section of a shell frame including bracket;

(d) Hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms;

(e) Boats or rafts provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water; and/or

(f) Other equivalent means.

5.2.3 For close-up surveys of the cargo hold shell frames of single-side skin bulk carriers of 100,000 dwt and above, the use of portable ladders shall not be accepted and one or more of the following means for access, acceptable to the surveyor, shall be provided:

(a) Annual surveys, intermediate survey under 10 years of age and first special survey:

- Permanent staging and passages through structures;

- Temporary staging and passages through structures;

- Hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms;

- Boats or rafts provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water; and/or

- Other equivalent means.

(b) Subsequent intermediate surveys and special surveys:

- Either permanent or temporary staging and passages through structures for close-up survey of at least the upper part of hold frames;

- Hydraulic arm vehicles such as conventional cherry pickers for surveys of lower and middle part of shell frames as alternative to staging;

- Lifts and movable platforms;

- Boats or rafts provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water; and/or

- Other equivalent means.

5.3 Notwithstanding the above requirements, the use of a portable ladder fitted with a mechanical device to secure the upper end of the ladder is acceptable for the “close-up examination of sufficient extent, minimum 25% of frames, to establish the condition of the lower region of the shell frames, including approximately lower one third length of side frame at side shell and side frame and attachment and the adjacent shell plating of the forward cargo hold” at annual survey.

5.4 The use of hydraulic arm vehicles or aerial lifts (“cherry pickers”) may be accepted by the attending surveyor for the close-up survey of the upper part of side shell frames or other structures in all cases where the maximum working height is not more than 17 m.

**6. List of equipment for survey**

This section of the survey programme shall identify and list the equipment that will be made available for carrying out the survey and the required thickness measurements.

(1) Thickness measurements shall normally be carried out by means of ultrasonic test equipment. The accuracy of the equipment shall be proven to the surveyor as required.

(2) One or more of the following fracture detection procedures may be required if deemed necessary by the Surveyor:

- Radiographic equipment

- Ultrasonic equipment

- Magnetic particle equipment

- Dye penetrant

(3) Explosimeter, oxygen-meter, breathing apparatus, lifelines, riding belts with rope and hook and whistles together with instructions and guidance on their use shall be made available during the survey. A safety checklist shall be provided.

(4) Adequate and safe lighting shall be provided for the safe and efficient conduct of the survey.

(5) Adequate protective clothing shall be made available and used (e.g. safety helmet, gloves, safety shoes, etc.) during the survey.

**7. Survey requirements**

**7.1 Overall survey**

This section of the survey programme shall identify and list the spaces that shall undergo an overall survey for this ship in accordance with CCS Rules and 2011 ESP Code.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- |
| ***(1) Cargo Holds:*** |
|  |
| ***(2) Ballast Tanks:*** |
|  |
| ***(3) Fuel Oil Tanks:*** |
|  |
| ***(4) Lube Oil Tanks:*** |
|  |
| ***(5) Fresh Water Tanks:*** |
|  |
| ***(6) Other Tanks/ Spaces:*** |
|  |

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|  |

**7.2 Close-up survey**

This section of the survey programme shall identify and list the hull structures that shall undergo a close-up survey for this ship in accordance with CCS Rules and 2011 ESP Code.

|  |
| --- |
|  |

**8. Identifications of tanks for tank testing**

This section of the survey programme shall identify and list the cargo holds and tanks that shall undergo tank testing for this ship in accordance with CCS Rules and 2011 ESP Code.

|  |  |
| --- | --- |
| Ballast Tanks: |  |
| Cargo Holds used for water ballast: |  |
| Fuel Oil Tanks: |  |
| Lube Oil Tanks: |  |
| Fresh Water Tanks: |  |
| Others: (if any) |  |

Notes:

(1) Tank testing of fuel oil, lube oil and fresh water tanks may be specially considered based on a satisfactory external examination of the tank boundaries, and a confirmation from the Master stating that the pressure testing has been carried out according to the requirements with satisfactory results.

(2) The testing of double bottom tanks and other spaces not designed for the carriage of liquid may be omitted, provided a satisfactory internal examination together with an examination of the tank top is carried out.

(3) Boundaries of ballast tanks are to be tested with a head of liquid to the top of air pipes.

(4) Boundaries of ballast holds are to be tested with a head of liquid to near to the top of hatches.

(5) Boundaries of fuel oil, lube oil and fresh water tanks are to be tested with a head of liquid to the highest point that liquid will rise under service conditions.

**9. Identification of areas and sections for thickness measurements**

This section of the survey programme shall identify and list the areas and sections where thickness measurements shall be taken in accordance with CCS Rules and 2011 ESP Code.

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**10. Minimum thickness of hull structures**

This section of the survey programme shall specify the minimum thickness for hull structures of this ship that are subject to survey, (indicate either (a) or preferably (b) if such information is available):

(a) [ ]  For non-CSR Bulk Carriers, determined from the Appendix 3.1 **Corrosion And Wastage Allowance of Hull Structure** and the original thickness according on the hull structure plans of the ship;

(b) [ ]  For non-CSR Bulk Carrier, given in the table(s) listed in Appendix 3.2 **Minimum Thickness Table of Hull Structure**.

(c) For vessels built under IACS Common Structural Rules, the renewal thickness of the hull structure elements shall be indicated in the appropriate drawings.

**11. Thickness measurements firm**

This section of the survey programme shall identify changes, if any, relating to the information on the thickness measurement firm provided in the survey planning questionnaire.

**12. Damage experience related to the ship**

This section of the survey programme shall provide details of the hull damages for at least the last three years in way of the cargo holds, ballast tanks and void spaces within the cargo length area, using the tables provided below. These damages shall be subject to survey.

**Hull damages sorted by location for this ship**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cargo Hold, tank or space number or area | Possible cause,if known | Description of the damages | Location | Repair | Date of repair |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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**Hull damages for sister or similar ships (if available) in the case of design related damage**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cargo Hold, tank or space number or area | Possible cause,if known | Description of the damages | Location | Repair | Date of repair |
|  |  |  |  |  |  |
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**13. Areas identified with substantial corrosion from previous surveys**

This section of the survey programme shall identify and list the areas of substantial corrosion from previous surveys.

**14. Critical structural areas and suspect areas**

This section of the survey programme shall identify and list the critical structural areas and the suspect areas, when such information is available.

|  |
| --- |
| List of Critical Areas for Bulk Carriers |
| Bulk Carriers/ Ore Carriers | Topside tanks/ Hopper tanks/ Double-bottom tanks/ Double-side tanks | connections of longitudinals to transverse web frames and transverse bulkheads |
| Bulk Carriers | Topside tanks | corners of transverse web frames |
| Bulk Carriers (Single hull) | Topside tanks/ Hopper tanks/ Cargo holds | connections of hold side frames to topside tanks and hopper tanks, including corresponding brackets in topside tanks and hopper tanks |
| Bulk Carriers | Cargo holds | connections of hatch end beam to topside tank web frame |
| Carriers (Single hull) | Cargo holds/ Hopper tanks/ Double-bottom tanks | welded or radiused knuckle between inner bottom and hopper sloping plating, particularly connected hopper tank web frames, double bottom side girders and floors |
| Bulk Carriers/ Ore Carriers | Cargo holds | connections of corrugated bulkhead, shelf and stool plating |
| Bulk Carriers/ Ore Carriers | Cargo holds | connections of lower stool plating to the inner bottom  |
| Bulk Carriers/ Ore Carriers | Main deck | web or deck at the toes of the longitudinal hatch coaming termination bracket |
| Bulk Carriers/ Ore Carriers | Main deck | hatch corners |
| Bulk Carriers/ Ore Carriers | Topside tanks/ Hopper tanks/ Double-bottom tanks/ Double-side tanks | transverse bulkhead adjacent to heated fuel oil tank (if fitted) |
| Ore Carriers | Wing tanks | connections of deck transverse in way of sheer strake and longitudinal bulkhead top strake |
| Ore Carriers | Wing tanks | corners of cross ties and floors |
| Ore Carriers | Wing tanks | connection of horizontal stringer on transverse bulkhead and side shell longitudinal |
| Ore Carriers | Cargo holds/Wing tanks | connection between inner bottom plating and longitudinal bulkhead lower strake, particularly connected longitudinal bulkhead vertical web, double bottom side girders and floors |
| Ore Carriers | Cargo holds | connections of deck transverses to deck girders |
| Ore Carriers | Cargo holds | connections of deck girders to hatch end beam |
| Ore Carriers | Cargo holds | connections of the stool sloping plating to the deck plating |

**15. Other relevant comments and information**

This section of the survey programme shall provide any other comments and information relevant to the survey.

**Appendices**

**Appendix 1 - List of Plans**

CCS Rules require that main structural plans of cargo holds and ballast tanks (scantling drawings), including information regarding use of high tensile steel (HTS), shall be available. This appendix of the survey programme shall identify and list the main structural plans which form part of the survey programme.

**Appendix 2 - Survey Planning Questionnaire**

The Survey Planning Questionnaire, which has been submitted by the owner, shall be appended to the survey programme.

**Appendix 3 - Other documentation**

This part of the survey programme shall identify and list any other documentation that forms part of the survey programme.

***.1 Corrosion And Wastage Allowance of Hull Structure ,*** *as referred to Paragraph 10 (a) “Minimum thickness of hull structures” is attached to this survey programme.* ------------------------------------------------------------------------------[ ]

***.2 Minimum Thickness Table of Hull Structure****, as referred to Paragraph 10 (b) “Minimum thickness of hull structures” is attached to this survey programme.* -----------------------------------------------------------------------------------------[ ]

The present survey programme is prepared by the owner in co-operation with China Classification Society.

|  |
| --- |
| Date: ( )(name and signature of authorized owner's representative)  |
| Date: ( )(name and signature of Surveyor to **CHINA CLASSIFICATION SOCIETY**)  |

**Appendix 1 - List of Plans**

1. Main structural plans (scantlings drawings) of cargo holds and ballast tanks, including information regarding use of high tensile steels (HTS), clad steel and stainless steel (for CSR ships these plans are to include for each structural element both the as-built and renewal thickness. Any thickness for voluntary addition is also to be clearly indicated on the plans. The midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for hold transverse section in all cargo holds)

|  |  |
| --- | --- |
| No. | Description |
| 1 | Midship Section and Typical Trans. BHD  |
| 2 | Construction Profile & Decks  |
| 3 | Shell Expansion  |
| 4 | Transverse Bulkheads  |
| 5 | Stem Construction  |
| 6 | Stern Construction  |
| 7 | Hatch Covers & Hatch Coaming Construction |
| 8 | Any other plans requested by the attending Surveyor |
|  |  |
|  |  |

2. Any other documentation that forms part of the plan

|  |  |
| --- | --- |
| No. | Name of documentation |
| 1 | General Arrangement  |
| 2 | Capacity Plan |
|  |  |
|  |  |
|  |  |

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CHINA CLASSIFICATION SOCIETY

**SURVEY PLANNING QUESTIONNAIRE**

**FOR BULK CARRIER**

# Appendix 2 - Survey Planning Questionnaire to Survey Programme

The following information will enable the owner in co-operation with China Classification Society to develop a survey programme complying with the requirements of CCS Rules and 2011 ESP Code. It is essential that the owner provides, when completing the present questionnaire, up-to-date information. The present questionnaire, when completed, shall provide all information and material required by CCS Rules and 2011 ESP Code.

**1. General Particulars**

|  |  |
| --- | --- |
| Ship's name: |  |
| IMO number: |  |
| Flag State: |  |
| Port of registry: |  |
| Owner: |  |
| Recognized organization: | China Classification Society |
| Gross tonnage: |  |
| Deadweight (metric tonnes): |  |
| Date of build: |  |

**2. Information on access provision for close-up surveys and thickness measurement**

The owner shall indicate, in the table below, the means of access to the structures subject to close-up survey and thickness measurement. A close-up survey is an examination where the details of structural components are within the close visual inspection range of the attending surveyor, i.e. preferably within reach of hand.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Hold/Tank****No.** | **Structure** | **Permanent Means of Access** | **Temporary staging** | **Hydraulic arm vehicles** | **Rafts** | **Ladders** | **Direct Access** | **Other means****(please specify)** |
| **F.P.** | Fore Peak |  |  |  |  |  |  |  |
| **A.P.** | Aft Peak |  |  |  |  |  |  |  |
| **Cargo Holds** | Hatch side coamings |  |  |  |  |  |  |  |
| Topside sloping plate |  |  |  |  |  |  |  |
| Upper stool plating |  |  |  |  |  |  |  |
| Cross deck |  |  |  |  |  |  |  |
| Side shell, frames and brackets |  |  |  |  |  |  |  |
| Transverse bulkhead |  |  |  |  |  |  |  |
| Hopper tank plating |  |  |  |  |  |  |  |
| Lower stool |  |  |  |  |  |  |  |
| Tank top |  |  |  |  |  |  |  |
| **Topside Tanks** | Underdeck structure |  |  |  |  |  |  |  |
| Side shell and structure |  |  |  |  |  |  |  |
| Sloping plate and structure |  |  |  |  |  |  |  |
| Webs and bulkheads |  |  |  |  |  |  |  |
| **Hopper Tanks** | Hopper sloping plate and structure |  |  |  |  |  |  |  |
| Side shell and structure |  |  |  |  |  |  |  |
| Bottom structure |  |  |  |  |  |  |  |
| Webs and bulkheads |  |  |  |  |  |  |  |
| **Double side tanks** | Side shell and structure |  |  |  |  |  |  |  |
| Inner skin and structure |  |  |  |  |  |  |  |
| Webs and bulkheads |  |  |  |  |  |  |  |
|  | Double bottom structure |  |  |  |  |  |  |  |
|  | Upper stool internal structure |  |  |  |  |  |  |  |
|  | Lower stool internal structure |  |  |  |  |  |  |  |
| **Wing tanks of ore carriers** | Underdeck and structure |  |  |  |  |  |  |  |
| Side shell and structure |  |  |  |  |  |  |  |
| Side shell vertical web and structure |  |  |  |  |  |  |  |
| Longitudinal bulkhead and structure |  |  |  |  |  |  |  |
| Longitudinal bulkhead web and structure |  |  |  |  |  |  |  |
| Bottom plating and structure |  |  |  |  |  |  |  |
| Cross ties/stringers |  |  |  |  |  |  |  |

Note: For all columns except the column mark with “Other means (please specify)”, “X” is to be filled in as applicable.

|  |
| --- |
| ***History of bulk cargoes of a corrosive nature (e.g. high sulphur content)：*** |
|  |
|  |
|  |
|  |
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|  |

**3. Owner’s inspection**

Using a format similar to that of the table below (which is given as an example), the owner shall provide details of the results of their inspections, for the last 3 years on all cargo holds and ballast tanks and void spaces within the cargo area, including peak tanks.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tank/ Hold No.** | **Corrosion Protection****①** | **Coating extent****②** | **Coating****Condition****③** | **Structural Deterioration****④** | **Hold and tank History****⑤** |
| **HC** | **SH** | **SC** | **A** | **NP** | **U** | **M** | **L** | **C** | **G** | **F** | **P** | **RC** | **Y/N** | **DR** | **L** | **CV** |
| **Cargo holds** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Topside tanks** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Hopper tanks** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Double side tanks** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Double bottom tanks** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Upper stools** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Lower stools** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Wing tanks****( Ore Tankers)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Fore peak** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Aft peak** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Miscellaneous other spaces** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Abbreviation:

① HC-N: Hard coating not subject to PSPC and PSPC (Void Space)

HC-B: Hard coating applied in dedicated seawater ballast tanks (PSPC)

HC-D: Hard coating applied in double-side skin spaces (PSPC)

HC-V: Hard coating applied in void spaces (PSPC)

SH = Semi Hard Coating SC = Soft coating A = Anodes NP = No protection

② U=Upper part M=Middle part L=Lower part C=Complete

③ G=Good F=Fair P=Poor RC=Recoated (during the last 3 years)

④ Y= Findings recorded, description of findings shall be attached to this questionnaire N = No findings recorded

⑤ DR=Damage & Repair L=Leakage CV= Conversion, description shall be attached to this questionnaire.

Notes:

(1) For sub-column marked with “HC”, type of hard coating is to be filled in, if applicable;

(2) For column marked with “Structural Deterioration ④”, “Y” or “N” is to be filled in;

(3) For all other columns, “X” is to be filled in as applicable.

**Name of owner’s representative:**

 **( )**

**Signature:**

**Date:**

**4. Reports of Port State Control inspections**

|  |
| --- |
| List the reports of port state control inspections containing hull structural related deficiencies and relevant information on rectification of the deficiencies: |
| Date of inspection | Port of inspection | Ship detained(Yes / No) | Description of hull structural related deficiencies / PSC report No. | Description of deficiencies rectification / PSC report No. |
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**5. Safety Management System**

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| List nonconformities related to hull maintenance, including the associated corrective actions: |
| Description of hull structural related non-conformities | Non-conformities given by | Corrective actions | Date of verification |
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**6. Name and address of the approved thickness measurement firm**

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| --- | --- |
| Name of firm: |  |
| Address: |  |

# Appendix 3.1 - Corrosion And Wastage Allowance of Hull Structure

This Appendix does not apply to the ships constructed in accordance with PART TEN of CCS Rules (2012 version) and its 2013 and 2014 amendments or PART NINE of CCS Rules (2015 version) and its subsequent versions (including amendments).

1 For a ship constructed in accordance with CCS rules and the keel of which was laid on or after 15 January 1983, the renewal thickness of hull plating and structural members is not to be less than the value obtained by multiplying their as-built thickness and the relevant percentage shown in Table 1 below:

**Table 1**

|  |  |
| --- | --- |
| Structural member | **Minimum renewal thickness** |
| L≥90 m | L<90 m |
| ① Strength deck plating, side shell, top strake, bilge strake, bottom shell, flat plate keel, inner bottom, continuous longitudinal bulkhead, hopper tank and topside tank plating.② Main longitudinal continuous members, e.g. deck girders, hatch side girders, side girders, bottom girders, bulkhead girders, continuous hatch coamings.③ Main transverse members, e.g. side frame webs, deck transverses, double plate floors, bulkhead webs, watertight and oiltight transverse bracket plates.④ Transverse bulkhead plating in holds, upper and lower bulkhead stool sloping plating, watertight bulkhead plating in deep tanks. | **80%** | **75%** |
| Other plating and members, e.g. deck within line of openings, deck longitudinals, side longitudinals, bottom longitudinals, inner bottom longitudinals, bulkhead longitudinals, face plates of frames, brackets of members, hatch covers, non-continuous hatch coamings, sea chests. | **75%** | **70%** |
| **Note:** For bulk carriers designed in accordance with CCS Rules and assigned the class notation of “Strengthened for Heavy Cargoes” and “Grab\* (×)”, the minimum renewal thickness of inner bottom may be taken as 75%. |

2 For bulk carriers constructed in accordance with CCS Rules and the scantlings of which as required by CCS Rules are indicated in their plans, the thickness reduction of hull plating and structural members caused by corrosion and wastage is not to be more than the value obtained by multiplying the thickness specified in CCS Rules and the relevant percentage shown in Table 1 above.

3 For bulk carriers of 150 m in length and upwards, contracted for construction on or after 1 July 1998 and carrying solid bulk cargoes having a density of 1.0 t/m3 and above, steel renewal is required where the gauged thickness of watertight corrugated bulkheads is less than tnet + 0.5 mm and coating (applied in accordance with the coating manufacturer’s requirements) or annual gauging may be adopted as an alternative to steel renewal where the gauged thickness is within the range tnet + 0.5 mm and tnet + 1.0 mm, where tnet being net thickness and obtained in accordance with Section 9, Chapter 8 of PART TWO of CCS Rules, except for:

(1) double skin bulk carriers the keels of which were laid or which were at a similar stage of construction before 1 July 1999;

(2) double skin bulk carriers the keels of which were laid or which were at a similar stage of construction before 1 January 2000, with distance between inner and outer skins being not less than 760 mm;

(3) double skin bulk carriers the keels of which were laid or which were at a similar stage of construction before 1 January 2000, with distance between inner and outer skins being not less than 1,000 mm.

4 For bulk carriers contracted for construction on or after 1 July 1998 and complying with Section 11, Chapter 8, PART TWO of CCS Rules, steel renewal is required where the gauged thickness of hatch covers is less than tnet + 0.5 mm. Where the gauged thickness is within the range tnet + 0.5 mm and tnet + 1.0 mm, coating (applied in accordance with the coating manufacturer’s requirements) or annual gauging may be adopted as an alternative to steel renewal. For internal members of double skin hatch covers, steel renewal is required where the gauged thickness is less than tnet or the Surveyor deems it necessary based on the corrosion or deformation. tnet is net thickness and to be obtained in accordance with Section 11, Chapter 8 of PART TWO of CCS Rules.

5 For bulk carriers, ore carriers and combination carriers (defined in Appendix 2, Chapter 2 of Part Nine of CCS Rules) contracted for construction on or after 1 January 2004 and complying with Section 11, Chapter 8, PART TWO of CCS Rules, steel renewal is required where the gauged thickness is less than tnet + 0.5 mm for single skin hatch cover and double skin hatch cover platings, hatching coamings and coaming stays. Where the gauged thickness is within the range tnet + 0.5 mm and tnet + 1.0 mm, coating (applied in accordance with the coating manufacturer’s requirements) or annual gauging may be adopted as an alternative to steel renewal. For internal members of double skin hatch covers, thickness measurement is required when CCS Surveyor deems it necessary based on the corrosion or deformation. Where the gauged thickness is less than tnet, the internal structure is to be renewed.

6 For the following bulk carriers of 150 m in length and upwards and carrying solid bulk cargoes having a density of 1.78 t/m3 and above, steel renewal is required where the gauged thickness of transverse watertight corrugated bulkheads between cargo holds Nos. 1 and 2 is less than tnet + 0.5 mm and coating (applied in accordance with the coating manufacturer’s requirements) or annual gauging may be adopted as an alternative to steel renewal where the gauged thickness is within the range tnet + 0.5 mm and tnet + 1.0 mm, with tnet being calculated in accordance with IACS UR S19:

(1) Bulk carriers contracted for construction before 1 July 1998 and not complying with IACS UR S18;

(2) Bulk carriers the keels of which were laid or which were at a similar stage of construction before 1 July 1999 and not complying with IACS UR S18.

7 For bulk carriers which were not built in accordance with Section 3, Chapter 8 of PART TWO of CCS Rules, steel renewal is required where the gauged thickness of side shell frames of cargo holds is less than tREN mm. Where the gauged thickness is within the range tREN mm and tCOAT mm, sand blasting, coating and reinforcements are to be done and the coating is to be maintained in “as-new” or an equivalent condition (i.e. without breakdown or rusting) at special and intermediate surveys. The tREN and tCOAT above are to be calculated in accordance with IACS UR S31.

**Appendix 3.2 - Minimum Thickness Table of Hull Structure**

Minimum thickness of hull structures is given in the following table:

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| --- | --- | --- | --- | --- |
| Area or location | Original as-built thickness (mm) | Minimum thickness (mm) | Substantial corrosion thickness (mm) | Remarks |
| **Deck** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals |  |  |  |  |
| Longitudinal girders |  |  |  |  |
| Cross deck plating |  |  |  |  |
| Cross deck stiffeners |  |  |  |  |
| **Bottom** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals |  |  |  |  |
| Longitudinal girders |  |  |  |  |
| **Inner bottom** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals |  |  |  |  |
| Longitudinal girders |  |  |  |  |
| Floors |  |  |  |  |
| **Ship side in way of top side tanks** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals |  |  |  |  |
| **Ship side in way of hopper side tanks** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals |  |  |  |  |
| **Ship side in way of tanks (if applicable)** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals or ordinary transverse frames |  |  |  |  |
| Longitudinal stringers |  |  |  |  |
| **Ship side in way of cargo holds** |  |  |  |  |
| Plating |  |  |  |  |
| Side frames webs |  |  |  |  |
| Side frames flanges |  |  |  |  |
| Upper brackets webs |  |  |  |  |
| Upper brackets flanges |  |  |  |  |
| Lower brackets webs |  |  |  |  |
| Lower brackets flanges |  |  |  |  |
| **Longitudinal bulkhead** |  |  |  |  |
| Plating |  |  |  |  |
| Longitudinals |  |  |  |  |
| Longitudinal girders |  |  |  |  |
| **Transverse bulkheads** |  |  |  |  |
| Plating |  |  |  |  |
| Stiffeners |  |  |  |  |
| Upper stool plating |  |  |  |  |
| Upper stool stiffeners |  |  |  |  |
| Lower stool plating |  |  |  |  |
| Lower stool stiffeners |  |  |  |  |
| **Transverse web frames in top side tanks** |  |  |  |  |
| Plating |  |  |  |  |
| Flanges |  |  |  |  |
| Stiffeners |  |  |  |  |
| **Transverse web frames in hopper tanks** |  |  |  |  |
| Plating |  |  |  |  |
| Flanges |  |  |  |  |
| Stiffeners |  |  |  |  |
| **Hatch covers** |  |  |  |  |
| Plating |  |  |  |  |
| Stiffeners |  |  |  |  |
| **Hatch coamings** |  |  |  |  |
| Plating |  |  |  |  |
| Stiffeners |  |  |  |  |
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Remarks: The wastage allowance tables shall be attached to the survey programme.